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(54) Title: COMPOSITIONS AND METHODS FOR STABLE ISOTOPE LABELLING OF BIOLOGICAL COMPOUNDS

(57) **Abstract:** The present invention is concerned the labelling of biological compounds with stable isotopes such that the three-dimensional structure of the biological compounds may be analysed by e.g. NMR spectroscopy. The invention employs microorganisms that are grown on mineral media comprising carbon and nitrogen sources that contain stable isotopes to produce biomass that is uniformly labelled with stable isotopes. The biomass may be autolysed to produce an autolysate. The biomass may further be extracted with organic solvent to produce lipids. The (delipidised) biomass is hydrolysed to produce labelled amino acids and other nutrients, which are used together with the autolysate, extracted lipids and further components to compose a culture medium for a mammalian or insect host cells for the production of biological compounds that are uniformly labelled with stable isotopes. The biological compound preferably is a biological acromolecule, such as e.g. a mammalian membrane protein.